

MICROLAMINATION METHOD FOR MAKING DEVICES

ABSTRACT

A method for fabricating devices in a pre-assembled state comprising forming plural laminae, registering the laminae, and bonding the laminae one to another is described. The plural laminae contain the substructures and structures of the device. The substructures are coupled to structures and other substructures by fixture bridges in the pre-assembled state. The substructures of the device are dissociated by eliminating the fixture bridges. The plural laminae are registered and bonded to form the device either before or after the fixture bridges are eliminated. The fixture bridges can be eliminated in a variety of ways, including vaporization by electrical current, chemical dissolution, or thermochemical dissociation. One method to selectively bond the laminae together is by microprojection welding. Microprojection welding comprises forming laminae with projections that extend from at least one planar surface of the lamina. Bonding together of laminae at selected regions is accomplished by placing the laminae between electrodes and passing a current through the electrodes. The laminae are bonded together selectively at the sites of the projections. Another method for bonding lamina involve diffusion soldering at reduced bonding pressures and temperatures to minimize flow restriction within or to features.